United States Department of the Interior
FISH AND WILDLIFE SERVICE
Texas Coastal and Central Plains Ecological Services Office
Corpus Christi Sub-Office
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Corpus Christi, Texas 78411
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In Reply Refer To:
2025-0006824

October 17, 2024

Ms. Laurie Gharis
Office of the Chief Clerk (MC 105)
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Dear Ms. Gharis:

The U.S. Fish and Wildlife Service (Service) received the Texas Commission on Environmental Quality's (TCEQ) Combined Notice of Public Meeting and Notice of Receipt of Application and Intent to Obtain Water Quality Permit (NORI) and Notice of Application and Preliminary Decision for TPDES Permit for Industrial Wastewater (NAPD), Proposed Permit Number WQ0005462000, (EPA I.D. Number TX0145251), filed by Space Exploration Technologies Corporation, 1 Rocket Road, Brownsville, Cameron County, Texas. The notice was issued September 5, 2024, with comments due October 17, 2024.

The Applicant, SpaceX, applied for a new Permit and proposes to discharge a combination of stormwater and non-process deluge system water that is utilized during launch operations, at an intermittent and flow-variable volume via Outfalls 001 and 002. The discharge route will be from the Starbase launch pad site, located on the south side of the eastern terminus of State Highway 4 (25.996969N, -97.156269W), via Outfalls 001 and 002 to tidal wetlands and mudflats immediately outside of the launch pad containment area, to the south/southwest of the launch pad. The discharge then continues south across State (Texas Parks and Wildlife Department) and Federal property (Lower Rio Grande Valley National Wildlife Refuge) south to segment 2301 of the Rio Grande River.

Outfall 001 is located from Launch Tower 1 (east) to mudflats located immediately outside of the containment area and approximately 290 feet southwest of the launch pad, at the bottom southern edge of the containment wall and retention pond located at approximately 25.995617, -97.154928. Outfall 002 is located from Launch Tower 2 (west) to tidal wetlands located immediately outside of the containment area and approximately 100 feet southwest of Launch

Tower 2, at the southern edge of the launch pad, approximately 25.9961862, - 97.1582205. Sampling points for Permit compliance (i.e., monitoring and reporting of pollutants) are located at the two outfalls, which receive combined wastewater flows comprised of variable stormwater, deluge water, water from routine external washing without chemicals/detergents, and water releases from maintenance events.

Segment 2301 extends from the confluence of the Rio Grande with the Gulf of Mexico to a point 6.7 miles downstream of the International Bridge in Cameron County. It is classified as a tidal stream and is designated for exceptional aquatic life use, contact recreation, general use and fish consumption.

According to the Permit application, the Starbase Launch Pad Site serves as a site for rocket launch activity for the SpaceX Starship-Super Heavy launch vehicle. Applicable Standard Industrial Classification (SIC) codes include 3761 Guided Missiles and Space Vehicles. Discharge water will consist of deluge water not captured by the containment area retention pond. Discharges from the facility are expected to contain total dissolved solids, nitrate-nitrogen, phosphorus, total dissolved solids, sulfate, chloride, fluoride, aluminum, cadmium, chromium, copper, cyanide, and zinc. Deluge deflector wastewater will be reused in the deluge system. Sedimentation controls would be utilized to be used/proposed to prepare industrial wastewater for reuse. Cooling water will be used for cooling purposes and be provided by Public Utilities Board of the City of Brownsville, Texas and operator will be Brownsville PUB water hauler. Approximately 25 percent of the total water withdrawn will be used at the facility exclusively for cooling purposes on an annual average basis. TPDES permits are issued for a 5-year period and renewed every 5 years thereafter.

A Tier 1 antidegradation review has preliminarily determined that existing water quality uses will not be impaired by this Permit action. A Tier 3 review has preliminarily determined that no significant degradation of water quality is expected in the tidal wetland, which has been identified as having high aquatic life use. Existing uses will be maintained and protected.

General Comment:

We support and agree with the recommendations provided by the Texas Parks and Wildlife Department (TPWD) in their comment letter dated October 17, 2024, which includes the following:

- Minimize potential impacts to areas outside the launch pad, including wildlife habitat on Boca Chica State Park and the Lower Rio Grande National Wildlife Refuge (LRGVNWR), by constructing retention ponds and a catchment system with sufficient capacity to capture all anticipated wastewater releases from the launch pad.
- To the extent possible, treat/recycle all stormwater and deluge wastewater captured by the retention/catchment system for reuse on future launches to avoid and minimize off-site discharges, until such time as pollutants in the water reach levels of concern and require disposal.
- Lining of the retention ponds with a barrier comprised of materials sufficient to prevent long-term, off-site migration of contaminants and protect groundwater.

- Clarify sources, volumes, methods of treatment, and types of water that will be utilized during the launch deluge process (e.g., amount of reclaimed water versus water sourced from nearby municipal drinking water treatment plant).

INDUSTRIAL WASTEWATER PERMIT APPICATION TECHNICAL REPORT 1.0

Comment: Page 30 of 962 Item 11b. Discharge/TLAP Disposal Information – This item asked the Applicant to provide a USGS Topographic Map with required information and check the box to confirm it has been included in the map. A confirmed box was new and future construction. However, the maps in this Permit do not reflect future construction the Service consulted on in a May 12, 2022, Biological and Conference Opinion. Expansion of SpaceX's launch facility includes new infrastructure, access road, and fencing to its southern and western boundaries.

Comment: Page 72 of 962 Item 12 Cooling Water on – *As per the application, SpaceX will use cooling waters and approximately 25 percent of total water will be used at the facility exclusively for cooling purposes on an annual average basis.* The application does not state the total number of gallons that will be discharged, so we are unable to determine what 25 percent of the total represents, nor does it reveal the volume of reclaimed water versus potable water.

Comment: Page 52 of 962 of the Permit states "*Discharges from the facility are expected to contain total dissolved solids, nitrate-nitrogen, phosphorus, total dissolved solids, sulfate, chloride, fluoride, aluminum, cadmium, chromium, copper, cyanide, and zinc. Wastewater will be treated by reusing deluge and pretreatment required.*" The Permit does not, however, specify the type of pretreatment or to what extent treatment would reduce contaminants in the wastewater. Please clarify what, if any, treatment of deluge wastewater will occur in between launch events and the expected quality of the treated water (i.e., whether (and to what extent) contaminants will be removed during treatment).

Comment: Page 61 of 962 of the Permit states that "*Discharge water will consist of minor amounts of deluge water not captured by the containment area during vehicle launch activities, deluge water captured by the containment area in retention pond and stormwater*", however the Permit does not calculate the anticipated volume of the discharge to areas outside the launch pad. Although not included in the Permit, information provided to the Service by the Federal Aviation Administration (FAA) on October 5, 2023, as part of an addendum to their October 2021 Biological Assessment (BA) to evaluate the effects of operating a deluge suppression system for the SpaceX Launch Area did provide estimates of wastewater discharge. The BA stated that approximately 71,000 gallons of deluge wastewater could be released as a combination of overland sheet flow, horizontal blow out, and vapor cloud condensation to areas outside the launch pad during each of up to 30 launches on an annual basis. If these estimates are correct, a total of 2,130,000 gallons of deluge wastewater could be discharged annually to areas outside the launch pad, potentially affecting the physical, chemical, and biological properties of State and Federal lands along the discharge route. We are particularly concerned with the potential for accumulation of trace metals in sediment/soils and wildlife that utilize these areas.

Comment: Page 137 of 962 Worksheet 11.2: Source Water Biological Data, Item 1 Species Management - The area in which discharge is proposed is a mosaic of tidal mudflats, saltwater ponds, and algal flats. Wintering birds such as the piping plover (*Charadrius melodus*) and red knot (*Calidris canutus rufa*), both listed as threatened under the Endangered Species Act (ESA), and other shorebirds use the beaches, mud flats, sand flats, algal flats, and washover passes to forage for their primary prey polychaete marine worms, various crustaceans, insects and

occasionally bivalve mollusks. Other migratory waterbirds such as the snowy plover, Wilson's plover and the least tern use the extensive area not only for foraging, but for roosting and nesting as well. It is also designated critical habitat for the piping plover and proposed critical habitat for the red knot. We are also concerned the introduction of, and frequent or constant discharge of, freshwater into the habitat could convert wind tidal flats to vegetated flats resulting in the loss of an unspecified amount of piping plover and red knot habitat.

As stated earlier, permitted discharges would impact areas owned and managed by the Service's LRGVNWR. The Service recommends TCEQ and/or SpaceX contact the Refuge and inquire as to whether any additional federal permits are required. Contacts for Refuge include Imer de La Garza, Refuge Manager, imer_delagarza@fws.gov or Stephanie Bilodeau, the Service's SpaceX liaison, at stephanie_bilodeau@fws.gov. We also recommend contacting the International Boundary and Water Commission (IBWC) and inquiring as to whether consultation or permits are required as their jurisdiction extends to parts of the Rio Grande, the land boundary between the United States and Mexico and to the border.

Comment: Page 151 of 962 Attachment G SpaceX Launch Pad TPDES Permit Site Map identifies the Approximate Maximum Deluge System Water Dispersal Limit. Before and after photographs of the area after a launch event reveals the water extends beyond those boundaries shown on the site map. It has at times extended as far south to the SpaceX property line and eastward to the vegetation line. It is anticipated dispersal of water will exceed the dispersal limit identified for Outfall 002, however, Launch Pad Number 2 is under construction and no launch activity or dispersal of deluge water has occurred at that site.

Comment: Page 929 of 962 of the Permit describes the Effluent Limitations and Monitoring Requirements, which stipulate that only chemical oxygen demand (COD) and oil & grease will have numeric limits in the discharge, with no numeric limits for trace metals or other pollutants. The monitoring requirements state that the applicant will monitor and report the remaining constituents in effluent, including daily average flow, COD, and oil & grease, and quarterly maximum concentrations for total copper, total mercury, total thalium, and total zinc. Page 52 of the Permit states that "*Discharges from the facility are expected to contain total dissolved solids, nitrate-nitrogen, phosphorus, total dissolved solids, sulfate, chloride, fluoride, aluminum, cadmium, chromium, copper, cyanide, and zinc*." Furthermore, starting on page 80 of the Permit, lab analysis of deluge wastewater samples provided by the applicant indicate that multiple trace metals were detected above the minimum analytical limit (MAL), some at levels of concern to wildlife. Trace metals above the MAL included aluminum, arsenic, barium, cadmium, chromium, copper, cyanide, iron, lead, manganese, zinc, and mercury. Trace metals are persistent and can accumulate in the environment, posing a risk to biological resources that utilize the area. Mercury in particular can bioaccumulate up the food web of ecosystems. Mercury was detected at 113 parts per billion (ppb or ug/L) in a grab sample from outfall 001 of the deluge wastewater. There is no safe level for mercury that is considered safe for humans or wildlife, but for comparison the Environmental Protection Agency's Maximum Contaminant Level in drinking water (for human consumption) is considerably lower than what was detected in the deluge wastewater (i.e., 2 ppb). The lab report also included notable results for hexavalent chromium (25.9 ppb), total copper (9.49 ppb), and iron (702 ppb).

Given the number of anticipated launches per year (>24), the volume of deluge wastewater estimated for discharge off-site (i.e., outside the launch area; 2,130,000 gallons per year), and the types and concentration of trace metals (and other pollutants like cyanide) present in the deluge

wastewater, we are concerned that the issuance of this Permit, as currently written, will allow degradation of water quality and wildlife habitat in areas adjacent to Space X property, including lands owned and managed by the State and the Service. Furthermore, since the Permit doesn't place limits on the amounts of trace metals that can be released, with reporting requirements that only monitor pollutants on a launch by launch basis via grab samples (as opposed to other sample media where pollutants could accumulate, like soils/sediments or biota), there is no mechanism in the Permit to determine the extent to which the surrounding environment may be impacted over time by the accumulation of potentially harmful constituents in the deluge wastewater.

Although not a part of the State Texas Pollutant Discharge Elimination System (TPDES) permitting process, the Service has been working with the FAA and SpaceX to develop a Contaminant Monitoring Plan as part of the required Section 7 consultation process per the Endangered Species Act. The Plan is still in development, but currently includes long term monitoring of contaminants of concern in water, soil, and benthic samples within a 0.6 mile area that will be impacted by launch related vapor plumes and overland sheet flows of deluge wastewater. We recommend further coordination between TCEQ, TPWD, SpaceX and the Service to ensure that this Contaminant Monitoring Plan, which is designed to monitor and protect biological resources, is robust and will augment/support monitoring requirements stipulated in the TPDES Permit.

In order to protect Service trust resources and reduce the potential for liability under the ESA, we recommend 1) the draft Permit be modified to address appropriate monitoring 2) conservation measures be implemented by the Applicant to avoid or reduce potential impacts to listed species, and 3) if potential impacts are expected to affect the piping plover and red knot, or designated or proposed as designated critical habitat, that the Permit be federalized by EPA and a request for formal section 7 consultation be submitted to the Service, or that TCEQ seek a Habitat Conservation Plan under Section 10(a)(1)(b) to provide coverage for "take" under the ESA. The Service also recommends reinitiation of the 1998 BO (Consultation Number 2-15-98-F-227) as new species have been listed or delisted and to allow the inclusion of new or updated information as appropriate.

Thank you for helping to conserve America's wildlife resources. The Service appreciates the opportunity to review and comment on SpaceX's proposed new TPDES Permit application WQ0005462000, EPA I.D. Number TX0145251. Please contact Mary Orms at mary_orms@fws.gov if you would like to discuss any our comments.

Sincerely,

CATHERINE YEARGAN
Digitally signed by CATHERINE YEARGAN
Date: 2024.10.17 16:51:22 -05'00'

Catherine Yeargan
Field Supervisor

cc:

Stephanie Bilodeau, LRGVNWR, Alamo, TX
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